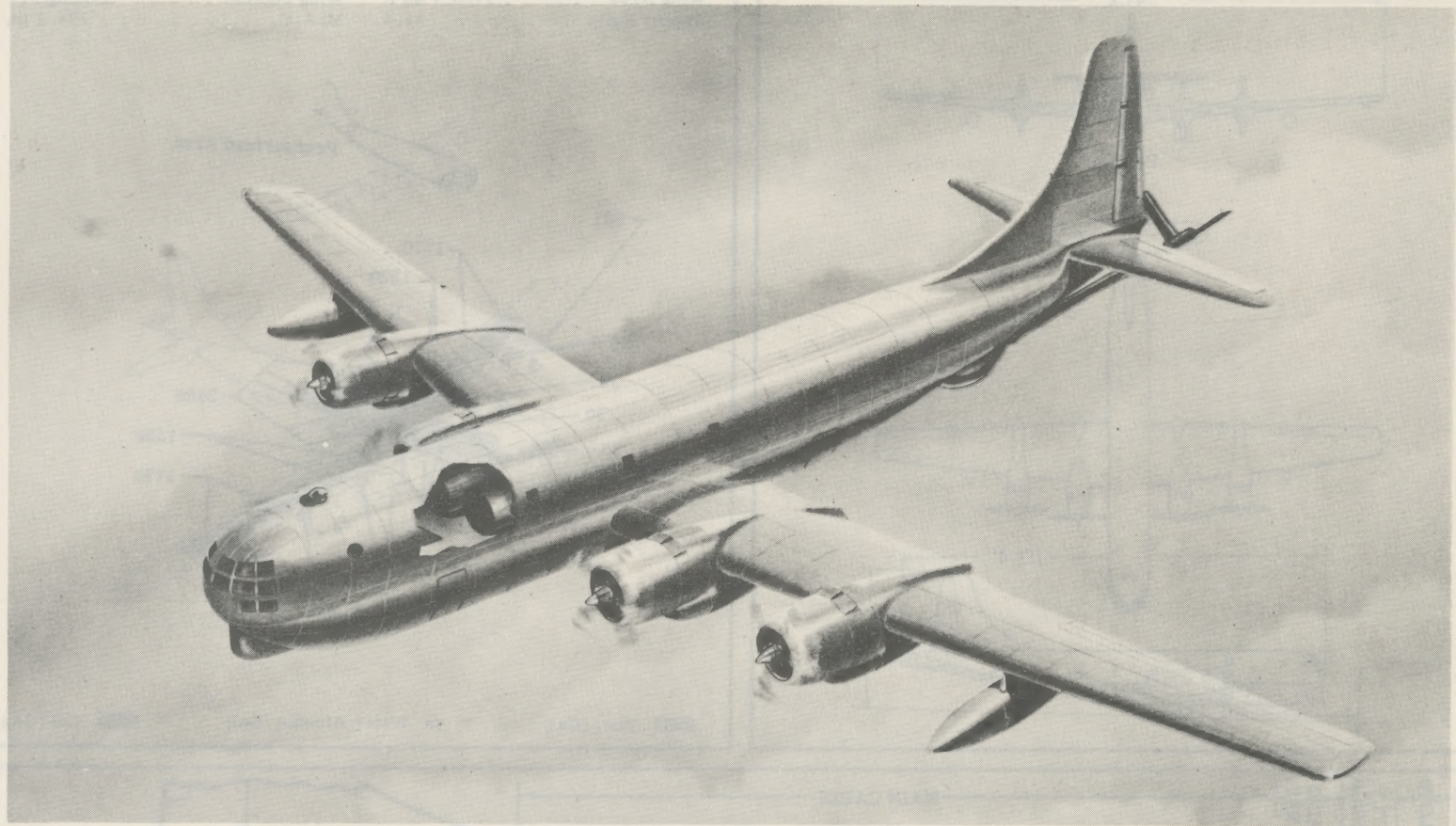


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SERVICE



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

KC-97 G
STRATOFREIGHTER
Boeing

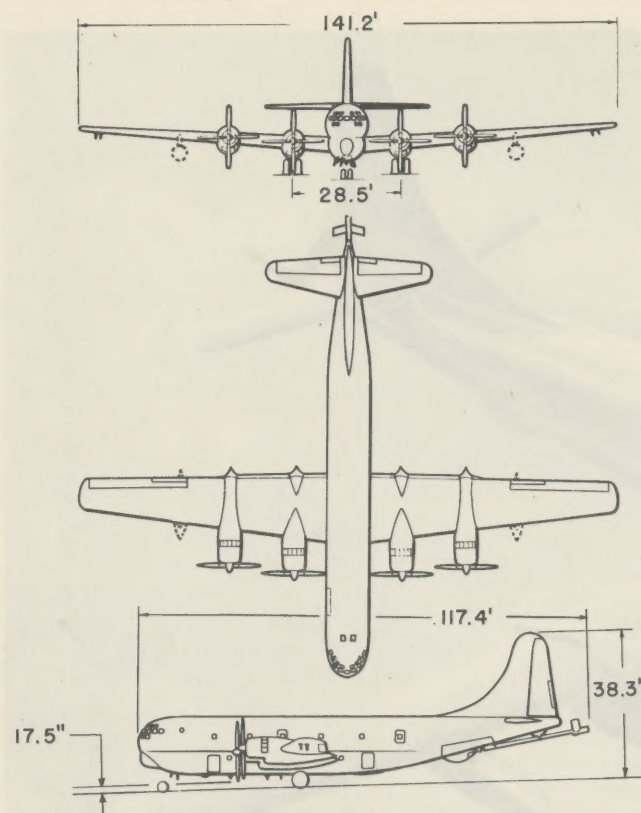
FOUR R-4360-59B

PRATT & WHITNEY

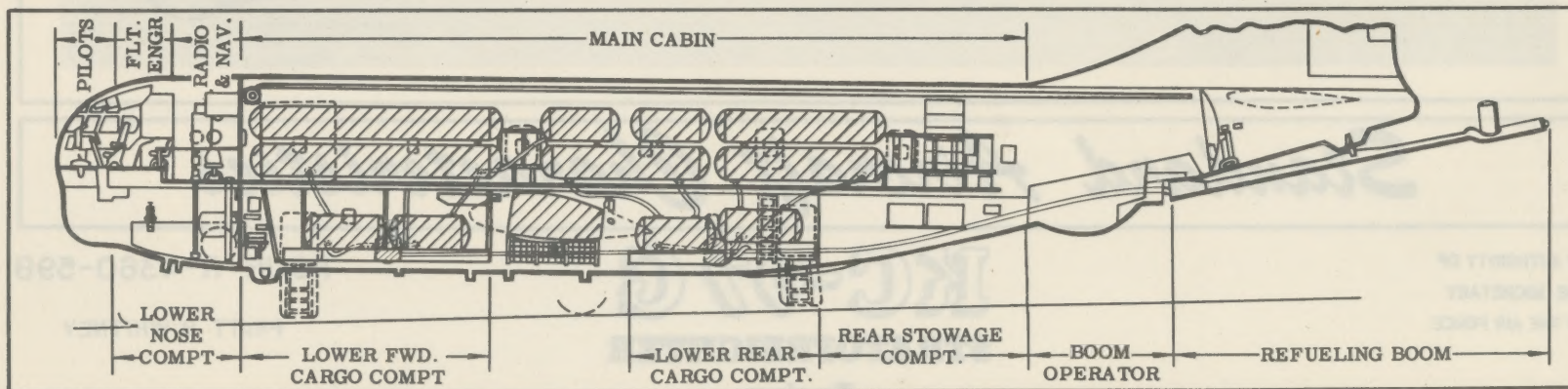
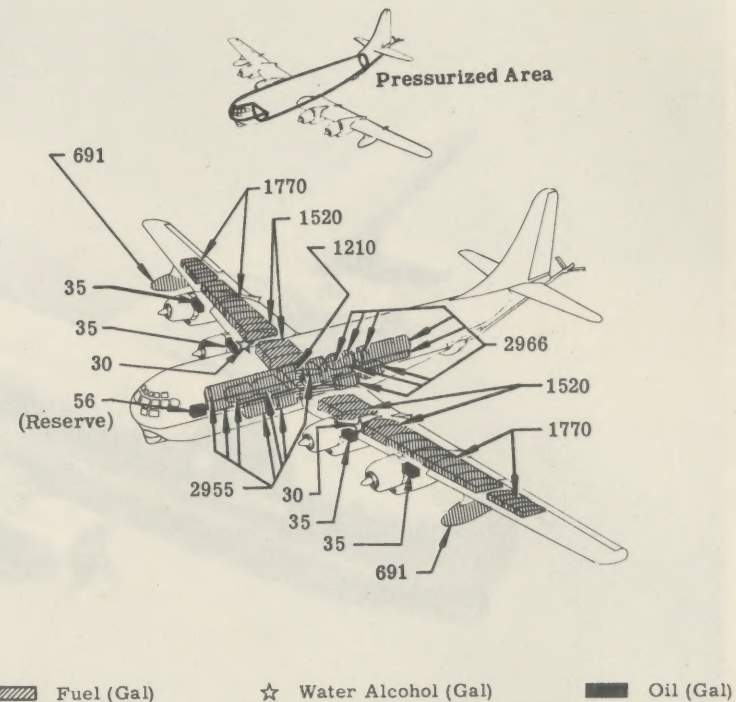
9 MAR 56

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KC-97G



Wing Area 1768.7 sq ft Wing Section Boeing 117
 Aspect Ratio 11.5 M. A. C. 154.4 in.



KC-97G

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POWER PLANT

No. & Model . . . (4) R-4360-59B
 Mfr Pratt & Whitney
 Engine Spec No. A-7091-G
 Superch 1 stg, 1 spd
 Turbo Superch (4) BH-4
 Turbo Mfr General Electric
 Red. Gear Ratio 0.375
 Prop Mfr Hamilton Std
 Blade Design No. 2J17H3-8W
 Prop Type Hydra, FF, Rev'r
 No. Blades 4
 Prop Dia 16'6"
 Augmentation Water/Alcohol

ENGINE RATINGS

BHP - RPM - ALT - MIN

T.O: *3500 - 2700 - 500 - 5

Mil: *3500 - 2700 - 500 - 30
 3250 - 2700 - 1000 - 30

Nor: 2650 - 2550 - 5500 - Cont

* Wet

Note: Increased altitude performance
 is available through use of external
 turbo supercharging

DIMENSIONS

Wing
 Span 141.2'
 Incidence (root) 4°
 (tip) 4°
 Dihedral 4°29'
 Sweepback (LE) 7°1'
 Length (overall) 117.4'
 Height 38.3'
 Height (fin folded) 26.6'
 Tread 28.5'
 Prop Grd Clearance 17.5"

Mission and Description

Navy Equivalent: None

Mfr's Model: 367-76-66

The principal mission of the KC-97G is that of a multi-purpose aircraft capable of either aerial flight refueling (AFR) of reciprocating and jet engine aircraft or serving as a limited cargo and/or troop transport without the necessity for conversion. However, this airplane retains the convertibility features of its predecessors, KC-97E & F, in that it may be converted into a full cargo or troop carrier by removing the AFR equipment and installing the cargo conversion kit which is supplied with each airplane.

The KC-97G is equipped and delivered with "Flying Boom" equipment incorporating fifteen (15) refueling tanks mounted on the upper and lower cargo decks, two (2) wing drop tanks, a boom operator's compartment and the Boeing refueling boom. The fuel system is interconnected with the AFR system so that the center section wing tank may be used for carrying jet fuel making available a total capacity of 8513 gal of jet fuel which can be transferred to receiver aircraft. If gasoline is carried all wing and AFR upper deck tank fuel, except fuel designated as reserve, can be transferred. Alternately, the AFR fuel may be used to supplement wing tank fuel for long range ferry missions.

While in the tanker configuration, the KC-97G may be used as a limited cargo and/or troop transport without removing or installing additional equipment. A space 72 inches wide and the full length of the main cargo compartment is available for carrying such major items as aircraft engines, standard AF split cargo bins, ground power units, etc. A wide variety of floor and side wall tiedown fittings are provided for securing all types of cargo. Accommodations for transporting fully equipped troops are also provided when the airplane is used as a troop transport.

Development

Similar to the KC-97F except for installation of external wing drop tanks and small diameter AFR tanks on the upper and lower decks, deletion of radio operator's station, changes in electronic equipment and other minor changes.

Design Initiated Jun 51
 Contract Approved Aug 52
 Mock-Up Mar 52
 First Flight May 53
 First Acceptance May 53
 Production Status In Production

GENERAL**CARGO**

Max Load (Ltd by strength): 57,500 lb
 CAPACITIES

Main Compt (vol) 3331 cu ft
 Main Compt (area) 416 sq ft
 Elec. Hoist w/Single Line 2500 lb

PERSONNEL

Crew (normal) 5
 Troops (max) 63
 Litters None

CLEARANCES**Main Compartment:**

Height 7.2 ft
 Length 63.6 ft
 Width (floor level) 6.1 ft

Cargo Door:

Height 6.5 ft
 Width 6.7 ft
 Height fr Grd 11.4 ft

LIMIT FLOOR LOAD

Main Compartment 200 lb/sq ft

WEIGHTS

Loading	LB	L. F.
Empty	84,835 (A)	
Basic	90,174 (A)	
Design	150,000	
Combat	*105,780	
Max T.O.(overload)†	175,000 . . .	2.00
Max T.O.(normal)†	153,000 . . .	2.50
Max Land	†175,000	

(A) Actual

* For Basic Mission

† Limited by strength

Note: See page 6, note (d) for
 normal operating weights.

FUEL

Location	No. Tanks	Gal
Wgs, outbd	2	3540
Wgs, inbd	2	3040
Wg, ctr	1	1210
Wgs, drop	2	1382
Fus, deck	15	5921
	Total	15,093
Grade		115/145
Specification		MIL-F-5572

OIL

Nacelles	4	140
Fus, fwd	1	56
	Total	196
Grade		1100
Specification		MIL-L-6082
		WATER/ALCOHOL
Wheel Well	2	(tot) 60

ELECTRONICS

VHF Command AN/ARC-3
 UHF Command AN/ARC-27
 HF Command Trans. AN/ART-13A
 HF Command Recv'r BC-348
 Liaison AN/ARC-21
 Interphone AN/AIC-10
 Radio Compass AN/ARN-6
 Marker Beacon AN/ARN-12
 Glide Path AN/ARN-18
 Radio Altimeter SCR-718C
 Omni-Direct Range AN/ARN-14
 Loran AN/APN-70
 IFF AN/APX-6
 See p.6, note (g) for additional data.

Loading and Performance—Typical Mission

C O N D I T I O N S			BASIC TANKER MISSION	NORMAL TANKER	B-47 REFUEL	FERRY RANGE	BASIC CARGO MISSION	NORMAL CARGO
			I	II	III	IV	V	VI
TAKE-OFF WEIGHT	(lb)		175,000	153,000	175,000	175,000	175,000	148,560
Fuel at 6.0 lb/gal (Grade 115/145)	(lb)		42,076	37,126	29,776	69,840 ⑦	35,288	31,068
Payload	(lb)	⑥	40,700	23,650	53,000	None	47,990	25,770
Wing loading	(psf)		101.7	89.0	101.7	101.7	101.7	86.4
Stall speed (power off)	(kn)		108	100	108	108	108	99
Take-off ground run at SL	(ft)	①	6500	4400	6500	6500	6500	4050
Take-off to clear 50 ft	(ft)	①	8150	5500	8150	8150	8150	5000
Rate of climb at SL	(fpm)	③	540	840	540	540	540	900
Rate of climb at SL (one eng. out)	(fpm)	②	320	600	320	320	320	660
Time: SL to 10,000 ft	(min)	③	20.0	13.0	20.0	20.0	20.0	12.0
Time: SL to 20,000 ft	(min)	③	50.0	29.0	50.0	50.0	50.0	26.5
Service ceiling (100 fpm)	(ft)	③	21,500	27,800	21,500	21,500	21,500	28,600
Service ceiling (one engine out)	(ft)	②	4800	12,600	4800	4800	4800	15,200
COMBAT RANGE	(n. mi)	④	—	—	—	4289	1813	1845
Average cruise speed	(kn)		—	—	—	211	200	209
Initial cruising altitude	(ft)		—	—	—	5000	5000	5000
Final cruising altitude	(ft)		—	—	—	15,000	5000	15,000
Total mission time	(hr)		—	—	—	20.7	9.1	8.9
COMBAT RADIUS	(n. mi)	④	1000	1000	590	—	1000	1000
Average cruise speed	(kn)		222	220	210	—	200	195
Initial cruising altitude	(ft)		5000	5000	5000	—	5000	5000
Final cruising altitude	(ft)		24,500	28,500	21,000	—	15,000	15,000
Total mission time	(hr)		9.4	9.0	6.4	—	10.0	10.30
FIRST LANDING WEIGHT	(lb)	⑤	—	—	—	—	155,000	132,500
Ground roll at SL	(ft)		—	—	—	—	3390	2900
Total from 50 ft	(ft)		—	—	—	—	4690	4060
COMBAT WEIGHT	(lb)	⑤	105,780	105,350	100,550	109,635	107,010	106,730
Combat altitude	(ft)		24,500	29,500	21,000	15,000	15,000	15,000
Combat speed	(kn)	②	311	318	313	294	295	295
Combat climb	(fpm)	②	1260	860	1540	1420	1490	1500
Combat ceiling (500 fpm)	(ft)	②	30,000+	30,000+	30,000+	30,000+	30,000+	30,000+
Service ceiling (100 fpm)	(ft)	③	30,000+	30,000+	30,000+	30,000+	30,000+	30,000+
Service ceiling (one engine out)	(ft)	③	30,000+	30,000+	30,000+	30,000+	30,000+	30,000+
Take-off ground run at SL	(ft)	①	—	—	—	—	1800	1800
Take-off to clear 50 ft	(ft)	①	—	—	—	—	2250	2250
Rate of climb at SL	(fpm)	②	2340	2345	2500	2220	2300	2305
Max speed at 26,000 ft	(kn)	②	326	326	328	322	325	325
Basic speed at 5000 ft	(kn)	②	278	278	279	278	278	278
LANDING WEIGHT	(lb)	⑤	95,139	94,879	94,509	109,635	94,282	94,017
Ground roll at SL	(ft)		2060	2050	2040	2390	2050	2040
Total from 50 ft	(ft)		3050	3020	3010	3430	3010	3000

NOTES

- ① Take-off power
 ② Max power (Same as normal power above 7800 ft)
 ③ Normal power

- ④ Detailed descriptions of Radius and Range missions are given on page 6

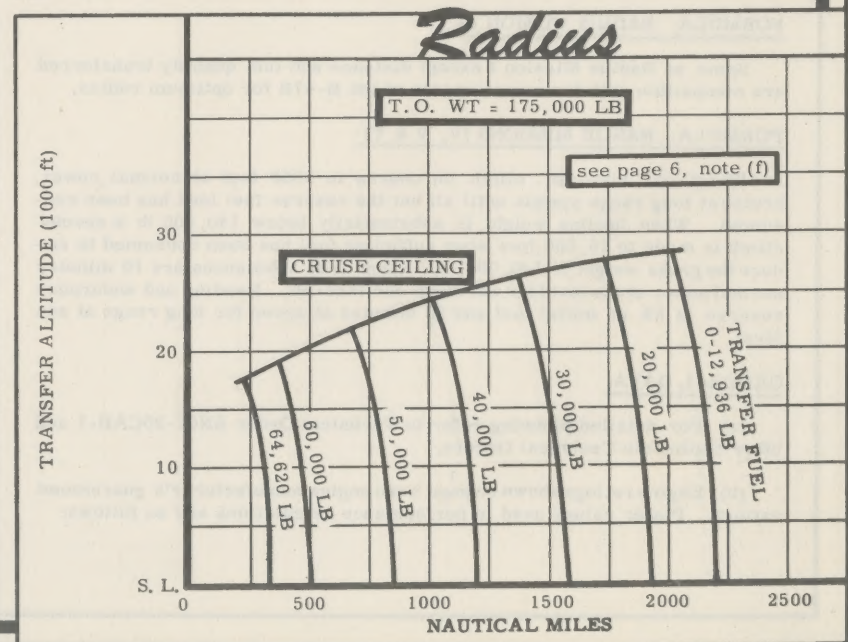
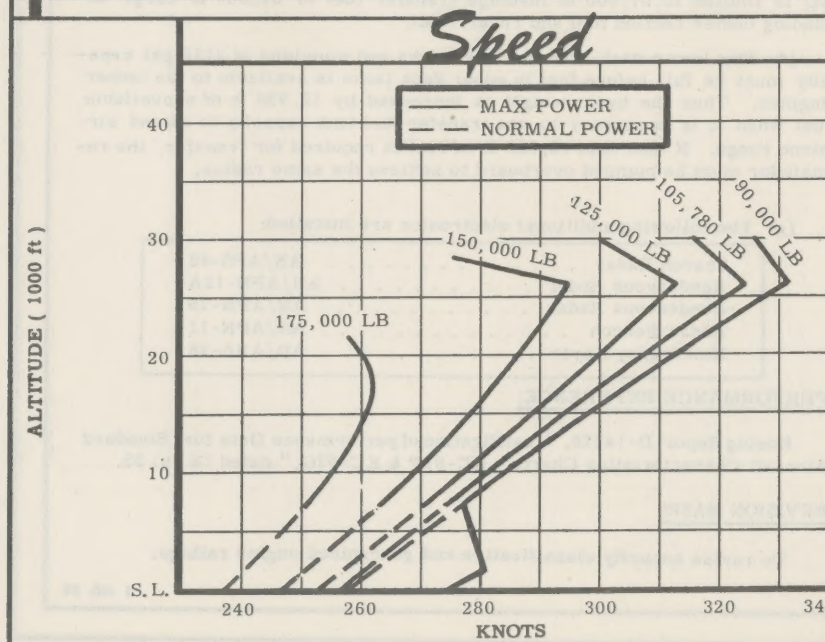
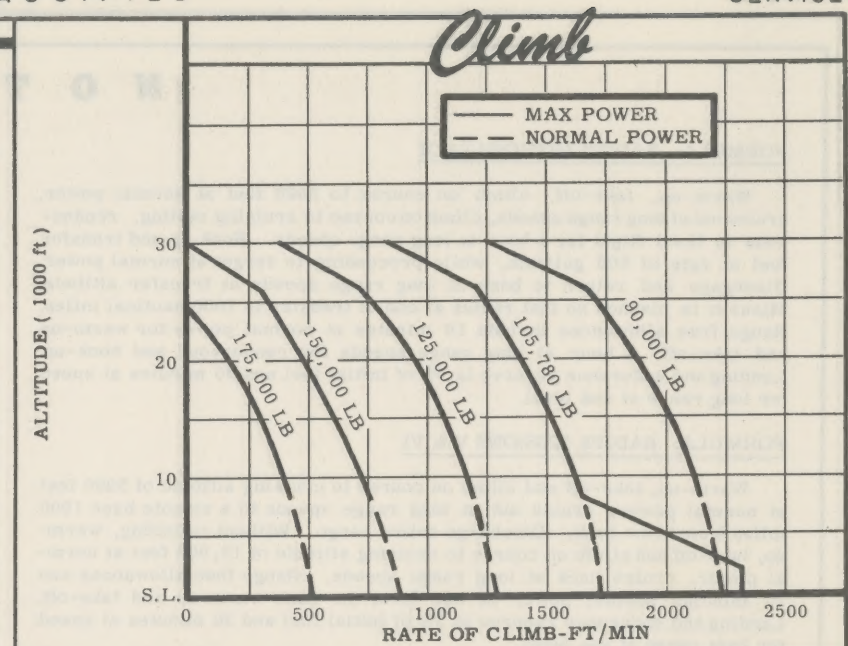
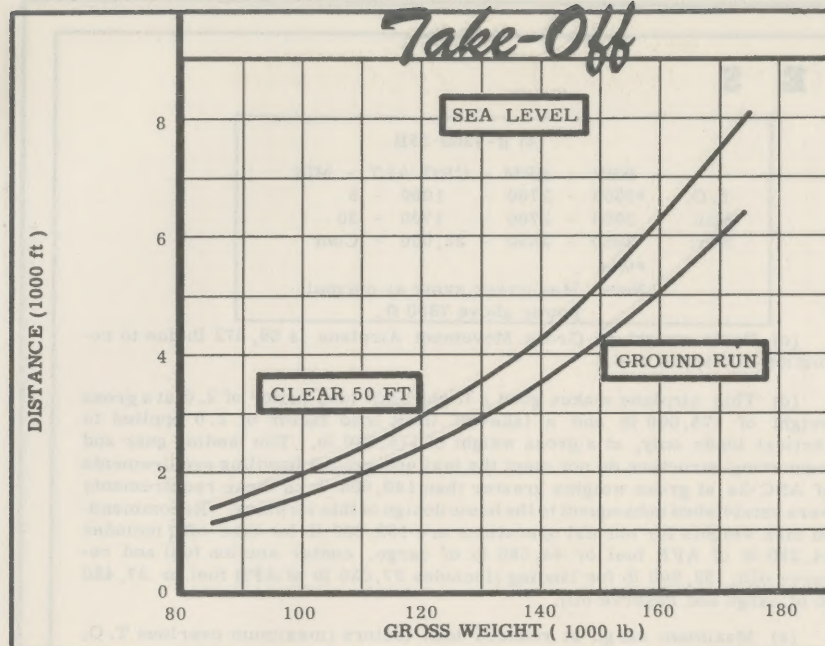
- ⑤ For Radius Missions if radius is shown

- ⑥ Payload is transfer fuel for Missions I, II & III; Cargo for Missions V & VI

- ⑦ See page 6, note (f)

Performance Basis:

- (a) Data Source: Flight Test
 (b) Performance is based on powers shown on page 6.



NOTES

FORMULA: RADIUS MISSIONS I & II

Warm-up, take-off, climb on course to 5000 feet at normal power, cruise out at long range speeds, climb on course to cruising ceiling, rendezvous in level flight for 1 hour at long range speeds. Hook up and transfer fuel at rate of 600 gal/min. while proceeding to target at normal power. Disengage and return to base at long range speeds at transfer altitude. Mission is planned so that radius at end of transfer is 1000 nautical miles. Range free allowances include 10 minutes at normal power for warm-up and take-off, 1 hour at long range speeds for rendezvous and hook-up. Landing and endurance reserve is 5% of initial fuel and 30 minutes at speed for long range at sea level.

FORMULA: RADIUS MISSIONS V & VI

Warm-up, take-off and climb on course to cruising altitude of 5000 feet at normal power, cruise out at long range speeds to a remote base 1000 miles from home base. Discharge entire cargo. Without refueling, warm-up, take-off and climb on course to cruising altitude of 15,000 feet at normal power, cruise back at long range speeds. Range free allowances are 10 minutes normal power at sea level for each warm-up and take-off. Landing and endurance reserve is 5% of initial fuel and 30 minutes at speed for long range at sea level.

FORMULA: RADIUS MISSION III

Same as Radius Mission I except distance and fuel quantity transferred are compatible with the requirements of the B-47B for optimum radius.

FORMULA: RANGE MISSIONS IV, V & VI

Warm-up, take-off, climb on course to 5000 feet at normal power, cruise at long range speeds until all but the reserve fuel load has been consumed. When landing weight is substantially below 140,000 lb a second climb is made to 15,000 feet when sufficient fuel has been consumed to reduce the gross weight to 140,000 lb. Range free allowances are 10 minutes normal power at sea level for warm-up and take-off. Landing and endurance reserve is 5% of initial fuel and 30 minutes at speed for long range at sea level.

GENERAL DATA:

(a) For detailed planning refer to Technical Order AN01-20CAH-1 and other applicable Technical Orders.

(b) Engine ratings shown on page 3 are engine manufacturer's guaranteed ratings. Power values used in performance calculations are as follows:

(4) R-4360-59B

	BHP	-	RPM	-	CRIT ALT	-	MIN
T.O:	*3500	-	2700	-	1000	-	5
Mil:	3250	-	2700	-	1700	-	30
Nor:	2650	-	2550	-	26,000	-	Cont

*Wet
Note: Max power same as normal
power above 7800 ft.

(c) Basic weight as Group Movement Airplane is 89,672 lb due to reduction in trapped fuel.

(d) This airplane makes good a flight limit load factor of 2.0 at a gross weight of 175,000 lb and a take-off limit load factor of 2.0 applied to vertical loads only, at a gross weight of 175,000 lb. The landing gear and supporting structure do not meet the taxi and ground handling requirements of ANC-2a at gross weights greater than 140,000 lb as these requirements were established subsequent to the basic design of this airplane. Recommended max weights for normal operations are 153,000 lb for take-off (includes 44,280 lb of AFR fuel or 44,680 lb of cargo, center section fuel and reserve oil); 132,500 lb for landing (includes 37,020 lb of AFR fuel or 37,420 lb of cargo and reserve oil).

(e) Maximum cargo at reduced load factors (maximum overload T.O. wt) is limited to 57,000 lb fuselage transfer fuel or 57,500 lb cargo including center section fuel and reserve oil.

(f) The lower deck transfer fuel tanks and plumbing of 2156 gal capacity must be full before fuel in upper deck tanks is available to the tanker engines. Thus the basic weight is increased by 12,936 lb of unavailable fuel when it is necessary to use transfer fuel tank capacity to extend airplane range. If less than 12,936 lb of fuel is required for transfer, the remainder must be pumped overboard to achieve the same radius.

(g) The following additional electronics are installed:

Search Radar	AN/APS-42
Rendezvous Radar	AN/APN-12A
Rendezvous Radar	AN/APN-76
Radar Beacon	AN/APN-11
Emergency Keyer	AN/ARA-26

PERFORMANCE REFERENCE:

Boeing Report D-14378, "Justification of performance Data for Standard Aircraft Characteristics Charts - KC-97F & KC-97G," dated 16 Jul 53.

REVISION BASIS:

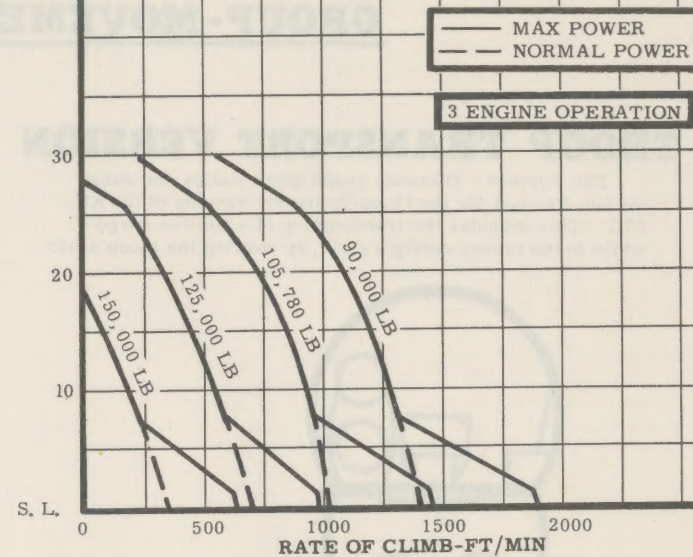
To revise security classification and guaranteed engine ratings.

1 JUL 53

SUPPLEMENTAL

Climb

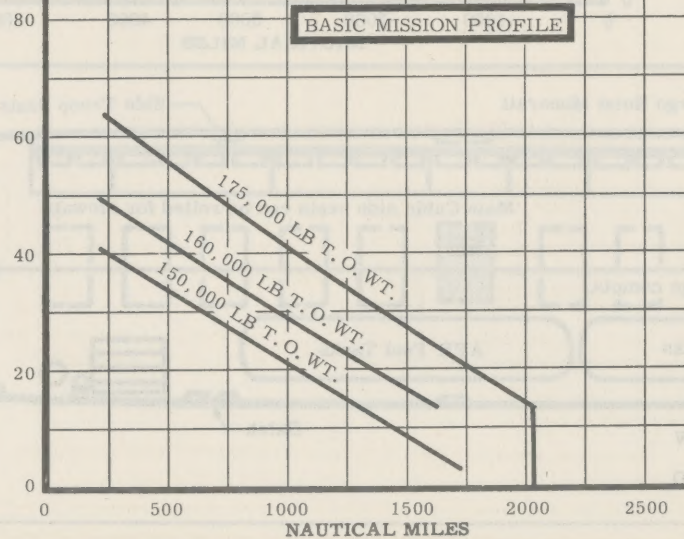
ALTITUDE (1000 ft)



Radius

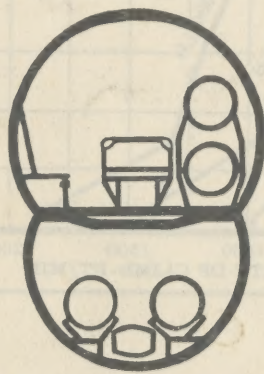
FUEL AVAILABLE FOR TRANSFER - 1000 lb

BASIC MISSION PROFILE



SUPPLEMENTAL**GROUP-MOVEMENT CONFIGURATION****TROOP TRANSPORT VERSION**

The Payload - Distance graph gives radius and range versus Payload for the troop-transport version of the KC-97G. This includes the transporting of a limited cargo while in the tanker configuration by stowing the troop seats.



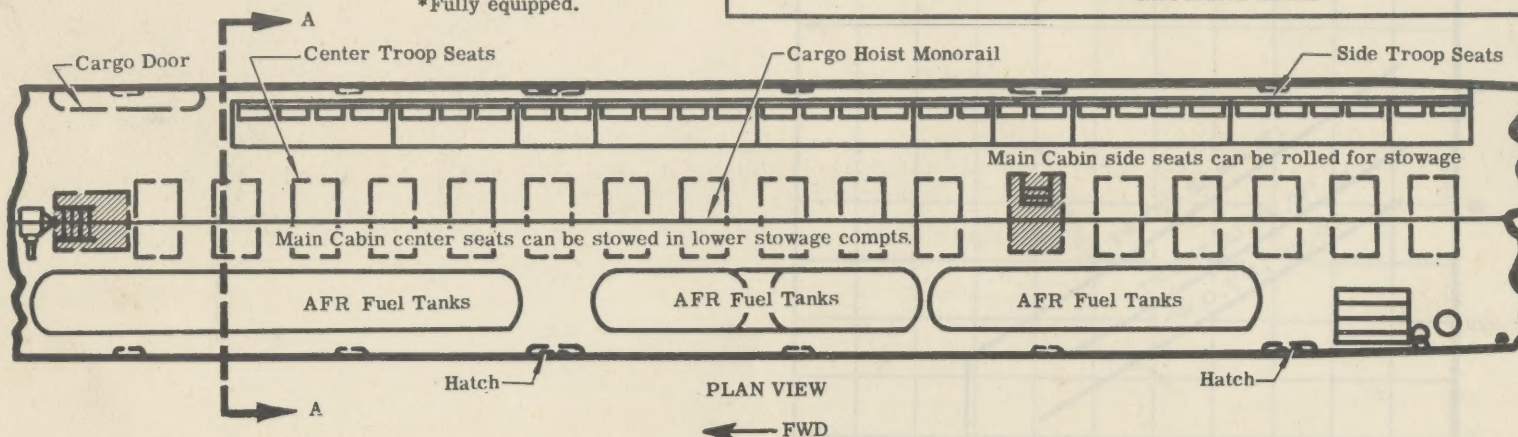
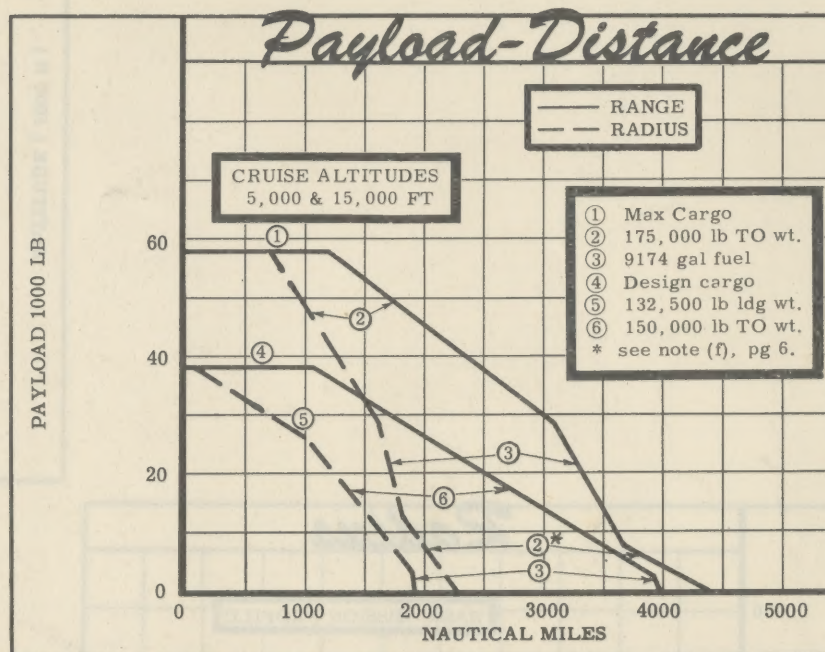
A-A

***TROOP SEATING CAPACITY**

Main Cargo RH Side.... 31
Main Cargo Center..... 32

Total..... 63

*Fully equipped.



KC-97G

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